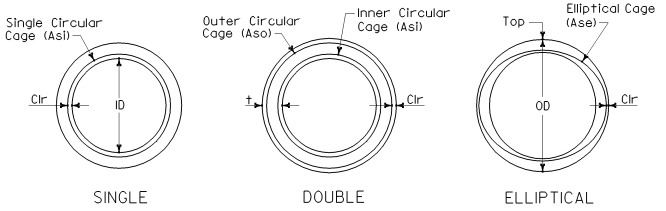
CONSTRUCTION NOTES

1. For details of the method of excavation, backfill and bedding (Method 1, Method 2, etc.), see Standard Plan A62D.
2. The tables for minimum allowable classes and D-loads of RCP on Standard Plan A62D shall not apply to direct design RCP.
3. Notes 3, 9 and 10 on Standard Plan A62D shall apply to direct design RCP.
4. Throughout the length of any given culvert, the direct design selected by the Contractor shall be the same, including the method of excavation, backfill and bedding.
5. The embankment height prior to excavation specified in note 5 of the Standard Plan A62D shall apply to the direct design RCP installation when Method 2, 3A or 3B are used.
6. For single circular cage reinforcement, minimum clearance shall be 40% of the wall thickness (t). For elliptical and double circular cage reinforcement where the wall thickness (t) is less than 65 mm (2½"), the minimum clearance (Clr) for reinforcement shall be 20 mm (¾"), and where the wall thickness (t) is 65 mm (2½") or more the minimum clearance (Clr) for reinforcement shall be 25 mm (1").
7. Minimum cover measured at the edge of pavement shall be 600 mm (24") to top of AC pavement and 300 mm (12") to top of rigid pavement.



CAGE REINFORCEMENT

t = Pipe barrel wall thickness, mm (inches)
Asi = Inner cage reinforcement, or single circular cage reinforcement, square mm/m (inches/LF)
Aso = Outer cage reinforcement, square mm/m (square inches/LF)
Ase = Elliptical single cage reinforcement, square mm/m (square inches/LF)
ID = Inside Diameter, mm (inches)
OD = Outside Diameter, mm (inches)
Clr = Design clearance, mm (inches) (see Note 6)

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

Paul Cotter
REGISTERED CIVIL ENGINEER
July 1, 2002
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Paul Cotter — No. C34509 — EXP. 9-30-03 — CIVIL — STATE OF CALIFORNIA

f'c = 42 MPa (6,000 psi)

ID	t	WALL A — MIN COVER TO 3 m (10') MAX COVER — METHOD 1 Asi	METHOD 1 Aso	METHOD 1 Ase	METHOD 2 Asi	METHOD 2 Aso	METHOD 2 Ase	METHOD 3B Asi	METHOD 3B Aso	METHOD 3B Ase	6 m (20') MAX COVER — METHOD 1 Asi	METHOD 1 Aso	METHOD 1 Ase	METHOD 2 Asi	METHOD 2 Aso	METHOD 2 Ase	METHOD 3B Asi	METHOD 3B Aso	METHOD 3B Ase	12 m (40') MAX COVER — METHOD 3B Asi	METHOD 3B Aso
600 mm (24")	63 mm (2½")	360 (0.17)	---	---	280 (0.13)	---	---	210 (0.10)	---	---	470 (0.22)	---	---	300 (0.14)	---	---	210 (0.10)	---	---	420 (0.20)	---
750 mm (30")	69 mm (2¾")	400 (0.19)	---	---	380 (0.18)	---	---	320 (0.15)	---	---	660 (0.31)	---	640 (0.30)	420 (0.20)	---	---	300 (0.14)	---	---	570 (0.27)	380 (0.18)
900 mm (36")	75 mm (3")	450 (0.21)	280 (0.13)	490 (0.23)	440 (0.21)	280 (0.13)	440 (0.21)	360 (0.17)	250 (0.12)	360 (0.17)	780 (0.37)	400 (0.19)	800 (0.38)	530 (0.25)	340 (0.16)	550 (0.26)	340 (0.16)	210 (0.10)	340 (0.16)	700 (0.33)	470 (0.22)
1050 mm (42")	88 mm (3½")	530 (0.25)	320 (0.15)	590 (0.28)	490 (0.23)	320 (0.15)	490 (0.23)	380 (0.18)	280 (0.13)	380 (0.18)	850 (0.40)	440 (0.21)	950 (0.45)	570 (0.27)	360 (0.17)	590 (0.28)	360 (0.17)	230 (0.11)	380 (0.18)	740 (0.35)	510 (0.24)
1200 mm (48")	100 mm (4")	660 (0.31)	380 (0.18)	680 (0.32)	510 (0.24)	340 (0.16)	530 (0.25)	400 (0.19)	280 (0.13)	400 (0.19)	950 (0.45)	490 (0.23)	1080 (0.51)	640 (0.30)	380 (0.18)	640 (0.30)	400 (0.19)	250 (0.12)	400 (0.19)	800 (0.38)	550 (0.26)
1350 mm (54")	113 mm (4½")	680 (0.32)	400 (0.19)	700 (0.33)	530 (0.25)	360 (0.17)	530 (0.25)	400 (0.19)	300 (0.14)	420 (0.20)	1040 (0.49)	530 (0.25)	1230 (0.58)	680 (0.32)	420 (0.20)	700 (0.33)	440 (0.21)	300 (0.14)	440 (0.21)	870 (0.41)	590 (0.28)
1500 mm 60")	125 mm (5")	700 (0.33)	400 (0.19)	720 (0.34)	550 (0.26)	360 (0.17)	550 (0.26)	400 (0.19)	300 (0.14)	420 (0.20)	1140 (0.54)	570 (0.27)	1380 (0.65)	740 (0.35)	470 (0.22)	760 (0.36)	490 (0.23)	320 (0.15)	490 (0.23)	950 (0.45)	640 (0.30)
1650 mm (66")	138 mm (5½")	720 (0.34)	420 (0.20)	740 (0.35)	550 (0.26)	360 (0.17)	570 (0.27)	420 (0.20)	300 (0.14)	420 (0.20)	1250 (0.59)	610 (0.29)	1500 (0.71)	800 (0.38)	510 (0.24)	830 (0.39)	530 (0.25)	340 (0.16)	530 (0.25)	1040 (0.49)	680 (0.32)
1800 mm (72")	150 mm (6")	740 (0.35)	420 (0.20)	760 (0.36)	550 (0.26)	360 (0.17)	570 (0.27)	400 (0.19)	300 (0.14)	420 (0.20)	1330 (0.63)	660 (0.31)	1630 (0.77)	870 (0.41)	550 (0.26)	890 (0.42)	550 (0.26)	360 (0.17)	570 (0.27)	1120 (0.53)	720 (0.34)
1950 mm (78")	163 mm (6½")	760 (0.36)	420 (0.20)	780 (0.37)	570 (0.27)	380 (0.18)	590 (0.28)	420 (0.20)	300 (0.14)	440 (0.21)	1460 (0.69)	700 (0.33)	1910 (0.90)	930 (0.44)	590 (0.28)	950 (0.45)	590 (0.28)	400 (0.19)	610 (0.29)	1210 (0.57)	780 (0.37)
2100 mm (84")	175 mm (7")	800 (0.38)	440 (0.21)	830 (0.39)	590 (0.28)	380 (0.18)	610 (0.29)	420 (0.20)	300 (0.14)	550 (0.26)	1570 (0.74)	760 (0.36)	---	990 (0.47)	640 (0.30)	1040 (0.49)	660 (0.31)	420 (0.20)	680 (0.32)	1290 (0.61)	830 (0.39)
2250 mm (90")	188 mm (7½")	850 (0.40)	470 (0.22)	870 (0.41)	640 (0.30)	400 (0.19)	660 (0.31)	440 (0.21)	300 (0.14)	610 (0.29)	---	---	---	1080 (0.51)	680 (0.32)	1140 (0.54)	700 (0.33)	470 (0.22)	720 (0.34)	1400 (0.66)	890 (0.42)
2400 mm (96")	200 mm (8")	910 (0.43)	490 (0.23)	930 (0.44)	660 (0.31)	420 (0.20)	700 (0.33)	440 (0.21)	300 (0.14)	700 (0.33)	---	---	---	1140 (0.54)	720 (0.34)	1290 (0.61)	740 (0.35)	490 (0.23)	760 (0.36)	1500 (0.71)	950 (0.45)
2550 mm (102")	213 mm (8½")	970 (0.46)	530 (0.25)	990 (0.47)	720 (0.34)	470 (0.22)	800 (0.38)	490 (0.23)	320 (0.15)	800 (0.38)	---	---	---	1230 (0.58)	760 (0.36)	1480 (0.70)	800 (0.38)	530 (0.25)	830 (0.39)	1590 (0.75)	990 (0.47)
2700 mm (108")	225 mm (9")	1040 (0.49)	570 (0.27)	1060 (0.50)	760 (0.36)	490 (0.23)	890 (0.42)	530 (0.25)	340 (0.16)	890 (0.42)	---	---	---	1310 (0.62)	830 (0.39)	1690 (0.80)	850 (0.40)	550 (0.26)	890 (0.42)	1690 (0.80)	1060 (0.50)

		WALL AA — 24 m (80') MAX COVER — METHOD 3C Asi	METHOD 3C Aso
f'c = 42 MPa (6,000 psi)	600 mm (24") 144 mm (5¾")	280 (0.13)	150 (0.07)
	750 mm (30") 150 mm (6")	400 (0.19)	150 (0.07)
	900 mm (36") 163 mm (6½")	510 (0.24)	150 (0.07)
	1050 mm (42") 175 mm (7")	610 (0.29)	210 (0.10)
	1200 mm (48") 188 mm (7½")	720 (0.34)	280 (0.13)
	1350 mm (54") 200 mm (8")	850 (0.40)	360 (0.17)
	1500 mm 60") 213 mm (8½")	990 (0.47)	440 (0.21)
	1650 mm (66") 225 mm (9")	1100 (0.52)	530 (0.25)
f'c = 49 MPa (7,000 psi)	1800 mm (72") 238 mm (9½")	1210 (0.57)	590 (0.28)
	1950 mm (78") 250 mm (10")	1330 (0.63)	680 (0.32)

DESIGN NOTES

Design: Bridge Design Specifications (1983 AASHTO with interims and revisions by Caltrans)

A. Earth Loading:
Earth Pressures - Vertical: 22.0 kPa/m (140 LB/CU FT)
Horizontal: Varies, see design lateral pressure chart (Circular Pipe only)

B. Unit Stresses: (Used in Design Tables)
fy = 450 MPa (65,000 psi)
f'c = See Tables

C. The RCP as shown on this sheet is not intended to be used in a corrosive environment. A special design may be required.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PRECAST REINFORCED CONCRETE PIPE DIRECT DESIGN METHOD

These "Standard Plans for Construction of Local Streets and Roads" contain units in two systems of measurement: International System of Units (SI or "metric") and United States Standard Measures shown in the parentheses ( ). The measurements expressed in the two systems are not necessarily equal or interchangeable. See the "Foreword" at the beginning of this publication.

NO SCALE

D79A

2002 DUAL UNITS STD PLAN D79